

L7 - Graphing Linear Relations

A tennis club charges \$25 initial membership fee plus \$5 per day.

The equation of this relation is $C = 25 + 5d$, where C is the cost and d is the number of days.

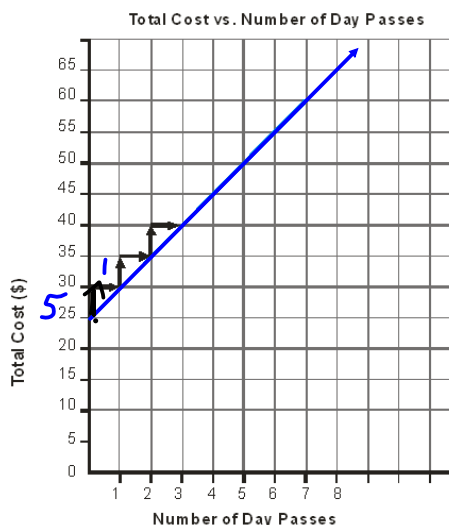
a) State the initial value? 25

b) What does the initial value represent in this situation?

membership fee you pay up front.

c) State the rate of change. 5

d) Use a "stair case" to show the rate of change on the graph.



Rise 5 *Run 1* $R.O.C. = \frac{\text{Rise}}{\text{Run}} = \frac{5}{1} = 5$

Continued..

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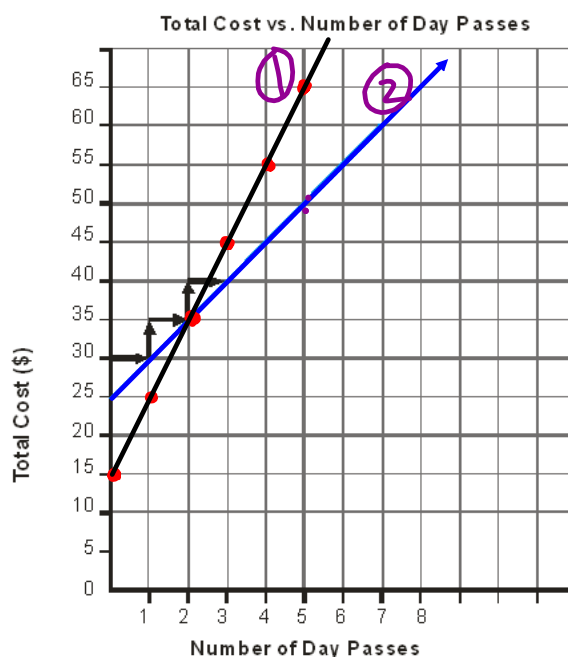
The equation of this relation is $C = 25 + 5d$, where C is the cost and d is the number of days.

e) What does the rate of change represent in this situation?

Cost per day of \$5

f) If the initial membership fee is changed to \$15 and daily cost to \$10, graph the new relation on the same grid.

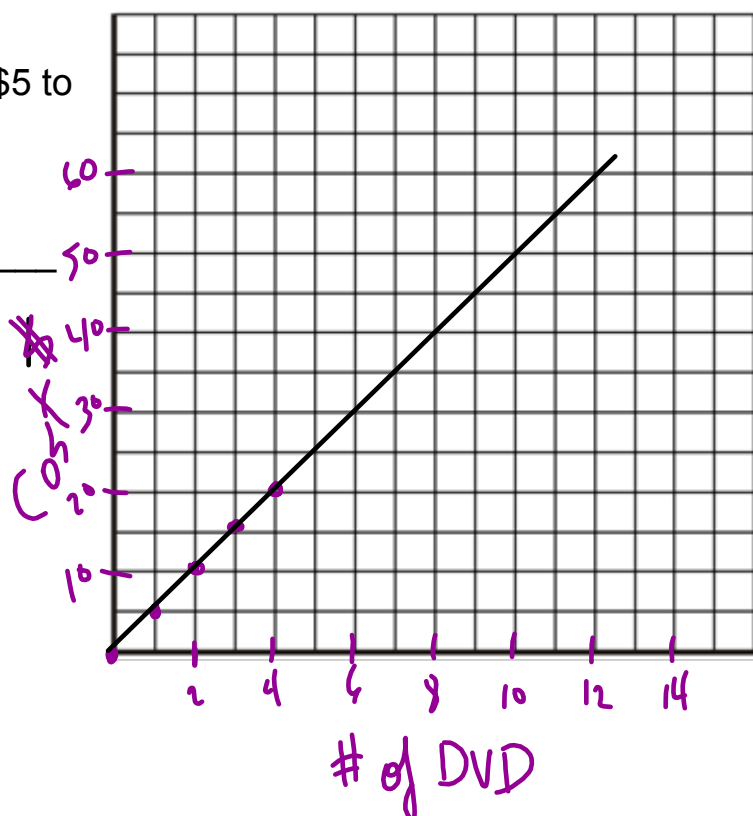
g) Write the equation of the new relation. $C = 15 + 10d$



Write the equation for the relationship and graph the relationship.

1. Movie House charges \$5 to rent each DVD.

Equation: $C = 5d$



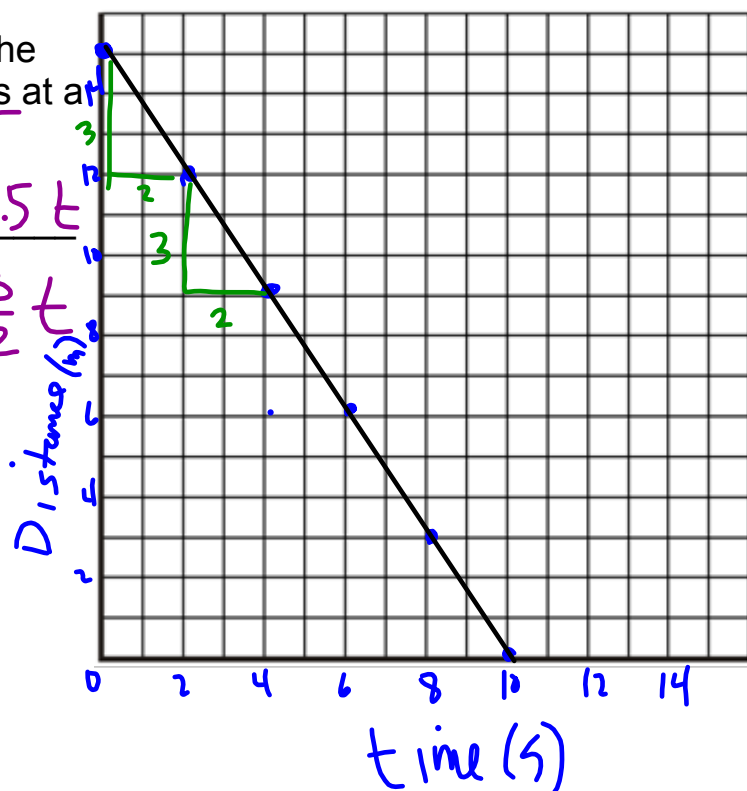
Write the equation for the relationship and graph the relationship.

2. A kite is 15 m above the ground when it descends at a steady rate of 1.5 m/s.

Equation: $D = 15 - 1.5t$

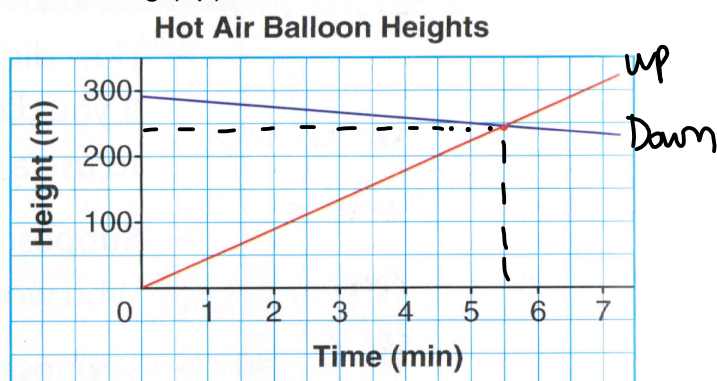
$D = 15 - \frac{3}{2}t$

$-\frac{3}{2} = \frac{\text{Rise}}{\text{Run}}$



3. One hot air balloon is descending (down).

Another is ascending (up).



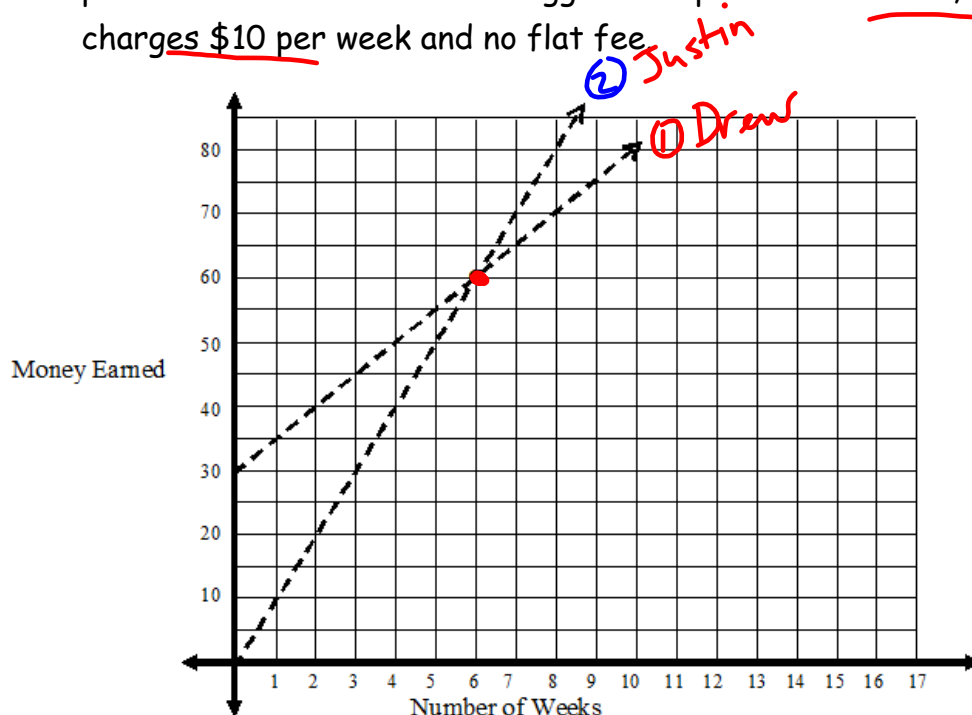
a) What is the starting height of the descending balloon? 290 m

b) Where do the lines intersect? (5.5, 249) (x,y)

What does this point represent?

At 5.5 sec they are both
249m off the ground.

4. Drew has started up a lawn-mowing business for the summer. He charges customers a flat fee of \$30 to sign up and an additional \$5 per week. He knows that his biggest competition is Justin, who charges \$10 per week and no flat fee.



a) The equation representing Drew's total earnings is

$$E = 5w + 30.$$

State Justin's equation $E = 10x$

b) Where do the lines intersect? $(6, 60)$

c) Explain what both numbers on the intersection (x, y) represent in this situation?

At 6 week both cost the same
\$60 is how much both are paid.

d) If you knew someone who needed their lawn mowed for 2 years, who would you recommend for the job. Explain.

Drew is cheaper because this P.O.C is smaller.

e) If you knew someone who needed their lawn mowed for 1 months, who would you recommend for the job. Explain.

Justin is cheaper because he does not have an initial fee.